Human Computer Interaction in Museums as Public Spaces:

A research of the Impact of Interactive Technologies on Visitors' Experience

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Certificate of Authorship/Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Abstract

More and more museums are incorporating interactive technologies into their exhibition environment in order to enhance their audiences' visiting experiences and satisfy their expectations. Since museums are public spaces, interactions with and within the technological environment are mainly social, many times unexpected and significantly different to those taking place in a private context. The accelerated development of technologies and their increasing availability, both for the general public and the corporative world, represent a myriad of challenges and opportunities for museums. This doctoral research investigates interrelated aspects in the domain of museum interactive exhibitions from the perspectives of the converging fields of Human Computer Interaction and Museum Studies. The research project aims to generate a comprehensive understanding of the influence that interactive technologies have on museum visitors' experiences with technologically-enhanced exhibition environments. Furthermore, given the social nature of the museum visiting experience, particular emphasis is put on the social implications of the incorporation of interactive technologies in the exhibition space.

The research approach of this project is an experience-centred field exploration informed by the development of three case studies in different exhibition settings and with different types of audiences. The purpose of the case study approach is to obtain first-hand accounts of visitors' experiences with interactive exhibits, exploring their physical, emotional and cognitive responses to these. Throughout the conduction of the case studies the work of HCI researchers John McCarthy, Peter Wright and Lisa Meekison on visitors' experiences in interactive exhibitions is used as a reflective tool. A mixed set of existing quantitative and qualitative tools is applied in each case study and new techniques are devised as the cases develop, in a responsive research approach to the existing field conditions. The exhibition settings that comprise this research project are: the *I See What You Mean* exhibition at the DAB Lab Research Gallery, the *Facets Kids* installation at the Powerhouse Museum, and the *Dangerous Australians* exhibit at the Australian Museum, all of them in Sydney, Australia.

The main outcome of this doctoral research is a referential model for the study of visitors' experiences with interactive exhibits. This model is proposed for design and museum practitioners to use as a guide in their research process for the development of new interactive exhibition environments. The conclusions of this research emphasise the need for more comprehensive understanding of visitors' experiences with technologies in the museum as a public space and the particular social interactions that occur in it.

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Foreword

My academic background is in Industrial Design and I hold a permanent contract position as lecturer and researcher in the School of Design at the Metropolitan Technological University (UTEM) Chile, lecturing in Semiotics, Design Fundamentals and Interaction Design. In 2008 I was awarded a competitive Mecesup Scholarship extended by the Chilean Ministry of Education to undertake doctoral research in the field of Human Computer Interaction.

As an active member of UTEM's research centre ProteinLab (UTEM's Prospective and Technological Innovation Program) I became interested in interactive technologies and engaged in research projects that explored these applied in areas as varied as mobile communications, marketing, distributed workspaces and domestic environments. Through this research I was able to observe the interaction between users and technologies in public spaces and identify that this particular context affected both the physical dynamics and the social behaviours. I saw in the conduction of post graduate research the opportunity to research a topic I felt warranted closer attention. Consequently, my research topic explores the interaction resulting of the relationship between public spaces, their users and supporting technologies.

Cultural heritage institutions such as museums are my particular area of interest. In the time it has taken to develop this doctoral research I have been able to analyse how progressively museums are integrating new technologies in their exhibitions, as a way of enhancing visitors' experience. Within this context I have observed several gaps between the intended purpose of the exhibits and spaces and the expectations and actual experiences of their visitors. My research premise is that museums may find in new technologies a useful tool for the fulfilment of visitors' new demands if these are addressed understanding visitors' needs and expectations in a more comprehensive way.

Museums are places in which the study of both social and technology-aided interactions take place in a natural and reliable environment, as opposed to a controlled laboratory research setting. Museums provide the potential for insight into visitors' encounters, explorations and

discoveries within their visiting experience. An integrating research approach centred on the conveyance of meaning through social interactions comes into sight as the most consistent approach for the future design of meaningful and engaging visiting experiences.